What is claimed is:

1.   A computer-implemented method for processing a transaction in an enterprise environment, the computer-implemented method comprising:

receiving a request to start the transaction;

5   storing information which indicates that the request to start the transaction was received;

accessing a first resource manager associated with the transaction;

initiating the transaction as a local transaction on the first resource manager; and

10   completing the transaction.

2.   A computer-implemented method as recited in claim 1 wherein completing the transaction includes using a local transaction mechanism of the first resource manager.

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3.   A computer-implemented method as recited in claim 1 further including:

initiating a global transaction after initiating the transaction as the local transaction; and

completing both the local transaction and the global transaction substantially

20   atomically using a last resource 2-phase commit optimization.

4.   A computer-implemented method as recited in claim 3 wherein completing both the local transaction and the global transaction substantially atomically includes using the local transaction as a last resource in the last resource 2-phase commit

25   optimization.

5.   A computer-implemented method as recited in claim 3 further including lazily determining whether to initiate the global transaction.

30   6.   A computer-implemented method as recited in claim 1 wherein the enterprise environment is a Java 2 Enterprise Environment, and receiving the request to start the transaction includes receiving the request from a component associated with the Java 2 Enterprise Environment.

7.   A computer-implemented method for implementing connections in an enterprise environment, the computer-implemented method comprising:

receiving a first request for a first connection between a component and a resource;

providing the first connection between the component and the resource;

receiving a second request for a connection associated with the component;

determining whether the first connection is sharable;

providing the first connection in response to the second request when it is determined that the first connection is sharable; and

providing a second connection in response to the second request when it is determined that the first connection is not sharable.

8.   A computer-implemented method as recited in claim 7 further including:

receiving a subsequent request for a subsequent connection associated with the component;

determining whether the first connection is sharable; and

providing the first connection in response to the subsequent request when it is determined that the first connection is sharable.

9.   A computer-implemented method as recited in claim 8 further including:

determining whether the second connection is sharable; and

providing the second connection in response to the subsequent request when it is determined that the second connection is sharable.

10.   A computer-implemented method as recited in claim 9 further including:

providing a distinct connection in response to the subsequent request when it is determined that the first connection and the second connection are not sharable.

11.   A computer-implemented method as recited in claim 9 further including:

providing a sharable connection in response to the subsequent request when it is determined that a sharable connection is available.

12.   A computer-implemented method as recited in claim 8 further including:

providing a distinct connection in response to the subsequent request when it is determined that the first connection is not sharable.

5   13.   A computer-implemented method as recited in claim 7 further including:

receiving a deployment hint from an application, the application being arranged to substantially communicate with the component, wherein the deployment hint is arranged to indicate whether at least one connection is sharable.

10   14.   A computer-implemented method as recited in claim 13 wherein the deployment hint is further arranged to indicated whether the at least one connection is unsharable.

15.   A computer-implemented method as recited in claim 13 wherein determining
15   whether the first connection is sharable includes using the deployment hint.

16.   A computer-implemented method for processing a transaction in an enterprise environment, the computer-implemented method comprising:

receiving a request to start the transaction, the request being received from a
20   component;

storing information which indicates that the request to start the transaction was received;

receiving a request for a first connection, the request being received from the component, the first connection being associated with a first resource;

25   providing a connection substantially between the first resource and the component;

initiating the transaction as a local transaction on the first connection; and completing the transaction.

30   17.   A computer-implemented method as recited in claim 16 further including:

a)   receiving a request for a subsequent connection, the request for the subsequent connection being received from the component;

b)   determining whether the subsequent connection is sharable;

c) determining whether the first connection is sharable;

d) determining whether the subsequent connection is associated with the first resource;

e) providing the first connection as the subsequent connection when it is determined that the subsequent connection is sharable, determined that the first connection is sharable, and determined that the subsequent connection is associated with the first resource; and

f) sharing the local transaction when it is determined that the subsequent connection is sharable, determined that the first connection is sharable, and determined that the subsequent connection is associated with the first resource.

18. A computer-implemented method as recited in claim 17 further including repeating steps a)-f) until it is determined that either the subsequent connection is not sharable or that the subsequent connection is not associated with the first resource.

19. A computer-implemented as recited in claim 17 wherein when it is determined that the subsequent connection is not shareable, the computer-implemented method further includes:

  providing a first distinct connection as the subsequent connection; and

  initiating a global transaction on the distinct connection.

20. A computer-implemented method as recited in claim 19 further including:

  requesting a second subsequent connection;

  determining whether the requested second subsequent connection is sharable;

  determining whether the first distinct connection is sharable;

  determining whether the requested second subsequent connection shares a common resource with the first distinct connection; and

  providing the first distinct connection as the second subsequent connection when it is determined that the requested second subsequent connection is sharable, determined that the first distinct connection is sharable, and determined that the requested second subsequent connection shares the common resource with the first distinct connection.

21. A computer-implemented method as recited in claim 19 wherein when it is determined that the first distinct connection and the requested second subsequent connection are sharable, the method further includes determining whether the requested second connection and the first connection are sharable, and providing the first connection as the second subsequent connection when it is determined that the requested second connection and the first connection are sharable.

22. A computer-implemented method as recited in claim 21 further including:
    providing a second distinct connection with a global scope as the second subsequent connection when it is determined that either the requested second subsequent connection is not sharable, determined that the first distinct connection is not sharable, or that the requested second subsequent connection does not share the common resource with the first distinct connection, or that the requested second subsequent connection and the first connection do not share a common resource .

23. A computer-implemented method as recited in claim 19 further including:
    receiving a request from the component to complete the transaction;
    completing the transaction using a last resource 2-phase commit optimization to globally finish both the global transaction and the local transaction.

24. A computer-implemented method as recited in claim 17 wherein when it is determined that either the subsequent connection is not shareable, the first connection is not sharable, or that the subsequent connection is not associated with the first resource, the computer-implemented method further includes:
    providing a first distinct connection as the subsequent connection; and
    initiating a global transaction on the distinct connection.

25. An enterprise computing environment comprising:
    a first resource;
    a component; and
    a container, wherein the component is contained in the container, the container being arranged to receive a request from the component to start a transaction which includes the first resource, the container further being arranged to store information

which indicates that the request to start the transaction was received, to access the first resource, to initiate the transaction as a local transaction on the first resource, and to complete the transaction.

5   26.   An enterprise computing environment according to claim 25 wherein the container is arranged to complete the transaction using a local transaction mechanism of the first resource manager.

27.   An enterprise computing environment according to claim 25 wherein the
10   container is further arranged to initiate a global transaction after initiating the transaction as the local transaction, and to complete both the local transaction and the global transaction substantially atomically using a local resource 2-phase commit optimization.

15   28.   An enterprise computing environment according to claim 25 wherein the enterprise computing environment is a Java 2 Enterprise Environment, and the component is an Enterprise Java Bean.

29.   An enterprise environment associated with a computing system, the enterprise
20   environment comprising:

    a resource;

    a component; and

    a container, the component being contained within the component, wherein the container is arranged to receive a first request for a first connection between the
25   component and the resource, to provide the first connection between the component and the resource, to receive a second request for a connection associated with the component, to determine whether the first connection is sharable, to provide the first connection in response to the second request when it is determined that the first connection is sharable, and to provide a second connection in response to the second
30   request when it is determined that the first connection is not sharable.

30.   An enterprise environment according to claim 29 wherein the container is further arranged to receive a subsequent request for a subsequent connection

associated with the component, to determine whether the first connection is sharable, and to provide the first connection in response to the subsequent request when it is determined that the first connection is sharable.

5 31.   An enterprise environment according to claim 30 wherein the container is further arrange to determine whether the second connection is sharable, and to provide the second connection in response to the subsequent request when it is determined that the second connection is sharable.

10 32.   An enterprise computing environment comprising:
a first resource;
a component; and
a container, the container being arranged to receive a request from the component to start a transaction, to store information which indicates that the request
15 to start the transaction was received, to receive a request from the component for a first connection to the a first resource, to providing a connection substantially between the first resource and the component, to initiate the transaction as a local transaction on the first connection, and to complete the transaction.

20 33.   An enterprise computing environment according to claim 32 wherein the container is further arranged to receive a request from the component for a subsequent connection, to determine whether the subsequent connection is sharable, to determine whether the first connection is sharable, to determine whether the subsequent connection is associated with the first resource, to provide the first connection as the
25 subsequent connection when it is determined that the subsequent connection is sharable, determined that the first connection is sharable, and determined that the subsequent connection is associated with the first resource, and to share the local transaction when it is determined that the subsequent connection is sharable, determined that the first connection is sharable, and determined that the subsequent
30 connection is associated with the first resource.

34.   An enterprise environment according to claim 33 wherein the container is arranged to provide a first distinct connection as the subsequent connection and to

initiate a global transaction on the distinct connection when it is determined that either the subsequent connection is not shareable, the first connection is not sharable, or that the subsequent connection is not associated with the first resource.

5   35.   A computer program product for processing a transaction in an enterprise environment, the computer program product comprising:

computer code for receiving a request to start the transaction;

computer code for storing information which indicates that the request to start the transaction was received;

10   computer code for accessing a first resource manager associated with the transaction;

computer code for initiating the transaction as a local transaction on the first resource manager;

computer completing the transaction; and

15   a computer-readable medium that stores the computer codes.

36.   A computer program product as recited in claim 35 wherein the computer code for completing the transaction includes computer code for using a local transaction mechanism of the first resource manager.

20

37.   A computer program product as recited in claim 35 further including:

computer code for initiating a global transaction after initiating the transaction as the local transaction; and

computer code for completing both the local transaction and the global

25   transaction substantially atomically using a local resource 2-phase commit optimization.

38.   A computer program product as recited in claim 37 wherein computer code for completing both the local transaction and the global transaction substantially

30   atomically includes computer code for using the local transaction as a last resource in the local resource 2-phase commit optimization.

39.   A computer program product as recited in claim 37 further including computer code for lazily determining whether to initiate the global transaction.

40.   A computer program product as recited in claim 35 wherein the computer-
5   readable medium is one selected from the group consisting of a data signal embodied in a carrier wave, a hard disk, a floppy disk, a tape, an optical disk, a CD-ROM, and a computer memory.

41.   A computer program product for implementing connections in an enterprise
10   environment, the computer program product comprising:
        computer code for receiving a first request for a first connection between a component and a resource;
        computer code for providing the first connection between the component and the resource;
15   computer code for receiving a second request for a connection associated with the component;
        computer code for determining whether the first connection is sharable;
        computer code for providing the first connection in response to the second request when it is determined that the first connection is sharable;
20   computer code for providing a second connection in response to the second request when it is determined that the first connection is not sharable; and
        a computer-readable medium that stores the computer codes.

42.   A computer readable medium as recited in claim 41 further including:
25   computer code for receiving a subsequent request for a subsequent connection associated with the component;
        computer code for determining whether the first connection is sharable; and
        computer code for providing the first connection in response to the subsequent request when it is determined that the first connection is sharable.
30

43.   A computer readable medium as recited in claim 42 further including:
        computer code for determining whether the second connection is sharable; and

computer code for providing the second connection in response to the subsequent request when it is determined that the second connection is sharable.

44. A computer readable medium as recited in claim 42 further including:

computer code for receiving a deployment hint from an application, the application being arranged to substantially communicate with the component, wherein the deployment hint is arranged to indicate whether at least one connection is sharable, and wherein the computer code for determining whether the first connection is sharable includes computer code for using the deployment hint.

45. A computer program product as recited in claim 41 wherein the computer-readable medium is one selected from the group consisting of a data signal embodied in a carrier wave, a hard disk, a floppy disk, a tape, an optical disk, a CD-ROM, and a computer memory.

46. A computer program product for processing a transaction in an enterprise environment, the computer program product comprising:

computer code for receiving a request to start the transaction, the request being received from a component;

computer code for storing information which indicates that the request to start the transaction was received;

computer code for receiving a request for a first connection, the request being received from the component, the first connection being associated with a first resource;

computer code for providing a connection substantially between the first resource and the component;

computer code for initiating the transaction as a local transaction on the first connection;

computer code for completing the transaction; and

a computer-readable medium that stores the computer codes.

47. A computer program product as recited in claim 46 further including:

computer code for receiving a request for a subsequent connection, the request
for the subsequent connection being received from the component;

computer code for determining whether the subsequent connection is sharable;

computer code for determining whether the first connection is sharable;

5   computer code for determining whether the subsequent connection is
associated with the first resource;

computer code for providing the first connection as the subsequent connection
when it is determined that the subsequent connection is sharable, determined that the
first connection is sharable, and determined that the subsequent connection is

10   associated with the first resource; and

computer code for sharing the local transaction when it is determined that the
subsequent connection is sharable, determined that the first connection is sharable,
and determined that the subsequent connection is associated with the first resource.

15   48.   A computer program product as recited in claim 47 further including:

computer code for providing a first distinct connection as the subsequent
connection when it is determined that the subsequent connection is not shareable; and

computer code for initiating a global transaction on the distinct connection
when it is determined that the subsequent connection is not shareable.

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49.   A computer program product as recited in claim 48 further including:

computer code for requesting a second subsequent connection;

computer code for determining whether the requested second subsequent
connection is sharable;

25   computer code for determining whether the first distinct connection is
sharable;

computer code for determining whether the requested second subsequent
connection shares a common resource with the first distinct connection; and

computer code for providing the first distinct connection as the second

30   subsequent connection when it is determined that the requested second subsequent
connection is sharable, determined that the first distinct connection is sharable, and
determined that the requested second subsequent connection shares the common
resource with the first distinct connection.

50.   A computer program product as recited in claim 47 wherein the computer-readable medium is one selected from the group consisting of a data signal embodied in a carrier wave, a hard disk, a floppy disk, a tape, an optical disk, a CD-ROM, and a computer memory.